RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number:	10/082594B
Source:	FWID
Date Processed by STIC:	2/2/5

ENTERED



IFW16

RAW SEQUENCE LISTINGPATENT APPLICATION: **US/10/088,594B**DATE: 02/02/2005

TIME: 16:07:46

Input Set: A:\5.1198 Sequence Listing.txt
Output Set: N:\CRF4\02022005\J088594B.raw

```
4 <110> APPLICANT: KYOWA HAKKO KOGYO CO., LTD
 6 <120> TITLE OF INVENTION: Novel Transaldolase
 8 <130> FILE REFERENCE: 00005.001198
10 <140> CURRENT APPLICATION NUMBER: US/10/088,594B
11 <141> CURRENT FILING DATE: 2002-03-21
13 <150> PRIOR APPLICATION NUMBER: JP 99/266548
14 <151> PRIOR FILING DATE: 1999-09-21
16 <160> NUMBER OF SEQ ID NOS: 6
18 <170> SOFTWARE: PatentIn Ver. 2.0
20 <210> SEQ ID NO: 1
21 <211> LENGTH: 1080
22 <212> TYPE: DNA
23 <213> ORGANISM: Corynebacterium glutamicum ATCC31388
25 <400> SEQUENCE: 1
27 atgtctcaca ttgatgatct tgcacagctc ggcacttcca cttggctcga cgacctctcc 60
29 cgcgagcgca ttacttccgg caatctcagc caggttattg aggaaaagtc tgtagtcggt 120
31 gtcaccacca acccagctat tttcgcagca gcaatgtcca agggcgattc ctacgacgct 180
33 cagategeag ageteaagge egetggegea tetgttgace aggetgttta egecatgage 240
35 ategaegatg ttegeaatge ttgtgatetg tteaeeggea tettegagte etecaaegge 300
37 tacqacqqcc qcqtqtccat cqaqqttqac ccacqtatct ctqctqaccq cqacqcaacc 360
39 ctgqctcagg ccaaggagct gtgggcaaag gttgatcgtc caaacgtcat gatcaagatc 420
41 cctgcaaccc caggttettt gccagcaate accgaegett tggetgaggg cateagegtt 480
43 aacqtcacct tgatcttctc cqttqctcgc taccqcgagg tcatcqctgc gtacatcgag 540
45 ggaatcaagc aggcagctgc aaacggccac gacgtatcca agatccactc tgtggcttcc 600
47 ttcttcgtct cccgcgtcga cgttgagatc gacaagcgcc tcgaggcaat cggatccgat 660
49 gaggetttgg etetgegegg caaggeagge gttgecaaeg eteagegege ttaegetgtg 720
51 tacaaggage ttttcgacge cgccgagctg cctgaaggtg ccaacactca gcgcccactg 780
53 tgggcatcca ccggcgtgaa gaaccctgcg tacgctgcaa ctctttacgt ttccgagctg 840
55 gctggtccaa acaccgtcaa caccatgcca gaaggcacca tcgacgctgt tctggaactg 900
57 qqcaacctqc acqqtqacac cctqtccaac tccqcqqcaq aagctqacqc tqtqttctcc 960
59 cagettgagg etetgggegt tgaettggea gatgtettee aggteetgga gaeegagggt 1020
61 qtqqacaaqt ttqttqcttc ttqqaqcqaa ctqcttqaqt ccatqgaagc tcgcctgaag 1080
63 <210> SEQ ID NO: 2
64 <211> LENGTH: 1080
65 <212> TYPE: DNA
66 <213> ORGANISM: Corynebacterium glutamicum ATCC31388
68 <400> SEQUENCE: 2
70 atgtctcaca ttgatgatct tgcacagctc ggcacttcca cttggctcga cgacctctcc 60
72 cgcgagcgca ttacttccgg caatctcagc caggttattg aggaaaagtc tgtagtcggt 120
74 gtcaccacca acccagctat tttcgcagca gcaatgtcca agggcgattc ctacgacgct 180
76 cagategeag ageteaagge egetggegea tetgttgace aggetgttta egecatgage 240
78 atcqacqatq ttcqcaatqc ttqtqatctq ttcaccqqca tcttcqagtc ctccaacqgc 300
```

80 tacgacggcc gcgtgtccat cgaggttgac ccacgtatet ctgctgaccg cgacgcaacc 360

RAW SEQUENCE LISTING DATE: 02/02/2005 PATENT APPLICATION: US/10/088,594B TIME: 16:07:46

Input Set : A:\5.1198 Sequence Listing.txt
Output Set: N:\CRF4\02022005\J088594B.raw

```
82 ctggctcagg ccaaggagct gtgggcaaag gttgatcgtc caaacgtcat gatcaagatc 420
84 cctgcaaccc caggttcttt gccagcaatc accgacgctt tggctgaggg catcagcgtt 480
86 aacqtcacct tgatcttctc cgttgctcgc taccgcgagg tcatcgctgc gtacatcgag 540
88 ggaatcaagc aggcaqctqc aaacqqccac qacqtatcca agatccactc tqtqqcttcc 600
90 ttcttcgtct cccgcgtcga cgttgagatc gacaagcgcc tcgaggcaat cggatccgat 660
92 gaggetttgg etetgegegg caaggeagge gttgecaaeg eteagegege ttaegetgtg 720
94 tacaaggage ttttcgacge egeegagetg cetgaaggtg ecaacaetea gegeeeactg 780
96 tgggcatcca ccggcgtgaa gaaccctgcg tacgctgcaa ctctttacgt ttccgagctg 840
98 getggtecaa acacegteaa caccatgeca gaaggcacca tegacgetgt tetggaactg 900
100 ggcaacctgc acggtgacac cctgtccaac tccgcggcag aagctgacgc tgtgttctcc 960
102 cagcttgagg ctctgggcgt tgacttggca gatgtcttcc aggtcctgga gaccgagggt 1020
104 gtggacaagt ttgttgcttc ttggagcgaa ctgcttgagt ccatggaagc tcgcctgaag 1080
107 <210> SEQ ID NO: 3
108 <211> LENGTH: 4108
109 <212> TYPE: DNA
110 <213> ORGANISM: Corynebacterium glutamicum ATCC31388
112 <220> FEATURE:
113 <221> NAME/KEY: CDS
114 <222> LOCATION: (373)..(2472)
116 <220> FEATURE:
117 <221> NAME/KEY: CDS
118 <222> LOCATION: (2643)..(3722)
120 <400> SEOUENCE: 3
122 tcgagagttt gaaggggtcc gattcgttcc gttcgtgacg ctttgtgagg ttttttgacg 60
124 ttgcaccgta ttgcttgccg aacatttttc ttttcctttc ggtttttcga gaattttcac 120
126 ctacaaaagc ccacgtcaca gctcccagac ttaagattgg tcacaccttt gacacatttg 180
128 aaccacagtt ggttataaaa tgggttcaac atcactatgg ttagaggtgt tgacgggtca 240
130 gattaagcaa agactacttt cggggtagat cacctttgcc aaatttgaat caattaacct 300
132 aagtegtaga tetgateate ggatetaaeg aaaaegaaee aaaaetttgg teeeggttta 360
134 acccaggaag gaatgaccac cttgacgctg tcacctgaac ttcaggcgct cactgtacgc 420
136 aattacccct ctgattggtc cgatgtggac accaaggctg tagacactgt tcgtgtcctc 480
138 gctgcagacg ctgtagaaaa ctgtggctcc ggccacccag gcaccgcaat gagcctggct 540
140 ccccttgcat acaccttgta ccagcgggtt atgaacgtag atccacagga caccaactgg 600
142 gcaggccgtg accgcttcgt tetttettgt ggccactect etttgaccca gtacatecag 660
144 ctttacttgg gtggattcgg ccttgagatg gatgacctga aggctctgcg cacctgggat 720
146 teettgacee caggacaeee tgagtacege cacaccaagg gegttgagat caccaetgge 780
148 cctcttggcc agggtcttgc atctgcagtt ggtatggcca tggctgctcg tcgtgagcgt 840
150 ggcctattcg acccaaccgc tgctgagggc gaatccccat tcgaccacca catctacgtc 900
152 attgcttctg atggtgacct gcaggaaggt gtcacctctg aggcatcctc catcgctggc 960
154 acccagcage tgggcaacet categtgtte tgggatgaca accgcatete categaagae 1020
156 aacactgaga tegettteaa egaggaegtt gttgetegtt acaaggetta eggetggeag 1080
158 accattgagg ttgaggctgg cgaggacgtt gcagcaatcg aagctgcagt ggctgaggct 1140
160 aagaaggaca ccaagcgacc taccttcatc cgcgttcgca ccatcatcgg cttcccagct 1200
162 ccaaccatga tgaacaccgg tgctgtgcac ggtgctgctc ttggcgcagc tgaggttgca 1260
164 gcaaccaaga ctgagcttgg attcgatcct gaggctcact tcgcgatcga cgatgaggtt 1320
166 ategeteaca ecegeteect egeagagege getgeacaga agaaggetge atggeaggte 1380
168 aagttcgatg agtgggcagc tgccaaccct gagaacaagg ctctgttcga tcgcctgaac 1440
170 tecegtgage ttecageggg etaegetgae gageteecaa eatgggatge agatgagaag 1500
172 ggcgtcgcaa ctcgtaaggc ttccgaggct gcacttcagg cactgggcaa gaccettcct 1560
```

RAW SEQUENCE LISTING DATE: 02/02/2005 PATENT APPLICATION: US/10/088,594B TIME: 16:07:46

Input Set: A:\5.1198 Sequence Listing.txt
Output Set: N:\CRF4\02022005\J088594B.raw

```
174 gagetgtggg geggtteege tgaeetegea ggtteeaaca acacegtgat caagggetee 1620
176 cetteetteg geeetgagte cateteeace gagacetggt etgetgagee ttaeggeegt 1680
178 aacctgcact teggtateeg tgageaeget atgggateea teeteaaegg cattteeete 1740
180 cacggtggca cccgcccata cggtggaacc ttcctcatct tctccgacta catgcgtcct 1800
182 gcagttcgtc ttgcagctct catggagacc gacgcttact acgtctggac ccacgactcc 1860
186 gccatcccag gtctgtccgt cctgcgtcct gcagatgcga atgagaccgc ccaggcttgg 1980
188 gctgcagcac ttgagtacaa ggaaggccct aagggtcttg cactgacccg ccagaacgtt 2040
190 cctqttctqq aaggcaccaa qqaqaaqqct qctqaaqqcq ttcqccqcqq tqqctacqtc 2100
192 ctggttgagg gttccaagga aaccccagat gtgatcctca tgggctccgg ctccgaggtt 2160
194 cagcttgcag ttaacgctgc gaaagctctg gaagctgagg gcgttgcagc tcgcgttgtt 2220
196 tcagttcctt gcatggattg gttccaggag caggacgcag agtacatcga gtccgttctg 2280
198 cctgcagctg tgaccgctcg tgtgtctgtt gaagctggca tcgcaatgcc ttggtaccgc 2340
200 ttcttgggca cccagggccg tgctgtctcc cttgagcact tcggtgcttc tgcggattac 2400
202 cagaccctgt ttgagaagtt cggcatcacc accgatgcag tcgtggcagc ggccaaggac 2460
204 tocattaaca gttaattgcc ctgctgtttt tagcttcaac ccggggcagt atgattctcc 2520
206 ggaattttat tgccccgggt tgttgttgtt aatcggtaca aagggtctta agcacatccc 2580
208 ttacttgcct gctctccttg agcacagttc aagaacaatt cttttaagga aaatttagtt 2640
210 tcatqtctca cattqatqat cttqcacaqc tcgqcacttc cacttqqctc gacgacctct 2700
212 cccqcqaqcq cattacttcc qqcaatctca qccaqqttat tqaqqaaaaq tctqtaqtcg 2760
214 gtgtcaccac caacccagct attttcgcag cagcaatgtc caagggcgat tcctacgacg 2820
216 ctcagatcgc agagetcaag geogetggeg catetgttga ceaggetgtt tacgecatga 2880
218 gcatcgacga tgttcgcaat gcttgtgatc tgttcaccgg catcttcgag tcctccaacg 2940
220 gctacqacqq ccqcqtqtcc atcqaqqttq acccacqtat ctctqctqac cqcqacqcaa 3000
222 ccctggctca ggccaaggag ctgtgggcaa aggttgatcg tccaaacgtc atgatcaaga 3060
224 tecetgeaac eccaggttet ttgecageaa teacegaege tttggetgag ggeateageg 3120
226 ttaacgtcac cttgatcttc tccgttgctc gctaccgcga ggtcatcgct gcgtacatcg 3180
228 agggaatcaa gcaggcagct gcaaacggcc acgacgtatc caagatccac tctgtggctt 3240
230 ccttcttcgt ctcccgcgtc gacgttgaga tcgacaagcg cctcgaggca atcggatccg 3300
232 atgaggettt ggetetgege ggeaaggeag gegttgeeaa egeteagege gettaegetg 3360
234 tgtacaagga gcttttcgac gccgccgagc tgcctgaagg tgccaacact cagcgcccac 3420
236 tgtgggcatc caccggcgtg aagaaccctg cgtacgctgc aactctttac gtttccgagc 3480
238 tggctggtcc aaacaccgtc aacaccatgc cagaaggcac catcgacgct gttctggaac 3540
240 tgggcaacct gcacggtgac accctgtcca actccgcggc agaagctgac gctgtgttct 3600
242 cccagcttga ggctctgggc gttgacttgg cagatgtctt ccaggtcctg gagaccgagg 3660
244 gtgtggacaa gtttgttgct tcttggagcg aactgcttga gtccatggaa gctcgcctga 3720
246 agtagaatca gcacgctgca tcagtaacgg cgacatgaaa tcgaattagt tcgatcttat 3780
248 gtggccgtta cacatettte attaaagaaa ggategtgae getaceateg tgagcacaaa 3840
250 cacqaccccc tccaqctqqa caaacccact qcqcqacccq caqqataaac qactcccccq 3900
252 categetgge cetteeggea tggtgatett eggtgteaet ggegaettgg etegaaggaa 3960
254 gctgctcccc gccatttatg atctagcaaa ccgcggattg ctgcccccag gattctcgtt 4020
256 ggtaggttac ggccgcgcg aatggtccaa agaagacttt gaaaaatacg tacgcgatgc 4080
                                                                     4108
258 cgcaagtgct ggtgctcgta cggaattc
261 <210> SEQ ID NO: 4
262 <211> LENGTH: 360
263 <212> TYPE: PRT
264 <213> ORGANISM: Corynebacterium glutamicum ATCC31388
266 <400> SEQUENCE: 4
268 Met Ser His Ile Asp Asp Leu Ala Gln Leu Gly Thr Ser Thr Trp Leu
```

RAW SEQUENCE LISTING DATE: 02/02/2005 PATENT APPLICATION: US/10/088,594B TIME: 16:07:46

Input Set : A:\5.1198 Sequence Listing.txt
Output Set: N:\CRF4\02022005\J088594B.raw

```
269
                                         10
271 Asp Asp Leu Ser Arg Glu Arg Ile Thr Ser Gly Asn Leu Ser Gln Val
274 Ile Glu Glu Lys Ser Val Val Gly Val Thr Thr Asn Pro Ala Ile Phe
277 Ala Ala Ala Met Ser Lys Gly Asp Ser Tyr Asp Ala Gln Ile Ala Glu
280 Leu Lys Ala Ala Gly Ala Ser Val Asp Gln Ala Val Tyr Ala Met Ser
                         70
283 Ile Asp Asp Val Arg Asn Ala Cys Asp Leu Phe Thr Gly Ile Phe Glu
286 Ser Ser Asn Gly Tyr Asp Gly Arg Val Ser Ile Glu Val Asp Pro Arg
289 Ile Ser Ala Asp Arg Asp Ala Thr Leu Ala Gln Ala Lys Glu Leu Trp
                                120
292 Ala Lys Val Asp Arg Pro Asn Val Met Ile Lys Ile Pro Ala Thr Pro
                            135
295 Gly Ser Leu Pro Ala Ile Thr Asp Ala Leu Ala Glu Gly Ile Ser Val
                       150
                                            155
298 Asn Val Thr Leu Ile Phe Ser Val Ala Arg Tyr Arg Glu Val Ile Ala
                                        170
                   165
301 Ala Tyr Ile Glu Gly Ile Lys Gln Ala Ala Ala Asn Gly His Asp Val
                180
                                    185
304 Ser Lys Ile His Ser Val Ala Ser Phe Phe Val Ser Arg Val Asp Val
307 Glu Ile Asp Lys Arg Leu Glu Ala Ile Gly Ser Asp Glu Ala Leu Ala
310 Leu Arg Gly Lys Ala Gly Val Ala Asn Ala Gln Arg Ala Tyr Ala Val
311 225
                        230
                                            235
313 Tyr Lys Glu Leu Phe Asp Ala Ala Glu Leu Pro Glu Gly Ala Asn Thr
316 Gln Arg Pro Leu Trp Ala Ser Thr Gly Val Lys Asn Pro Ala Tyr Ala
               260
                                    265
319 Ala Thr Leu Tyr Val Ser Glu Leu Ala Gly Pro Asn Thr Val Asn Thr
                                280
322 Met Pro Glu Gly Thr Ile Asp Ala Val Leu Glu Leu Gly Asn Leu His
                            295
325 Gly Asp Thr Leu Ser Asn Ser Ala Ala Glu Ala Asp Ala Val Phe Ser
                        310
328 Gln Leu Glu Ala Leu Gly Val Asp Leu Ala Asp Val Phe Gln Val Leu
                                        330
331 Glu Thr Glu Gly Val Asp Lys Phe Val Ala Ser Trp Ser Glu Leu Leu
332
                340
                                    345
334 Glu Ser Met Glu Ala Arg Leu Lys
           355
337 <210> SEQ ID NO: 5
338 <211> LENGTH: 700
339 <212> TYPE: PRT
340 <213> ORGANISM: Corynebacterium glutamicum ATCC31388
```

2/2/05

DATE: 02/02/2005

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/088,594B TIME: 16:07:46

Input Set: A:\5.1198 Sequence Listing.txt
Output Set: N:\CRF4\02022005\J088594B.raw

342 <400> SEQUENCE: 5 Met Thr Thr Leu Thr Leu Ser Pro Glu Leu Gln Ala Leu 345 347 Thr Val Arg Asn Tyr Pro Ser Asp Trp Ser Asp Val Asp Thr Lys Ala 20 350 Val Asp Thr Val Arq Val Leu Ala Ala Asp Ala Val Glu Asn Cys Gly 353 Ser Gly His Pro Gly Thr Ala Met Ser Leu Ala Pro Leu Ala Tyr Thr 50 55 356 Leu Tyr Gln Arg Val Met Asn Val Asp Pro Gln Asp Thr Asn Trp Ala 359 Gly Arg Asp Arg Phe Val Leu Ser Cys Gly His Ser Ser Leu Thr Gln 362 Tyr Ile Gln Leu Tyr Leu Gly Gly Phe Gly Leu Glu Met Asp Asp Leu 100 365 Lys Ala Leu Arg Thr Trp Asp Ser Leu Thr Pro Gly His Pro Glu Tyr . 115 120 368 Arg His Thr Lys Gly Val Glu Ile Thr Thr Gly Pro Leu Gly Gln Gly 130 135 371 Leu Ala Ser Ala Val Gly Met Ala Met Ala Ala Arg Arg Glu Arg Gly 145 150 374 Leu Phe Asp Pro Thr Ala Ala Glu Gly Glu Ser Pro Phe Asp His His 160 165 170 377 Ile Tyr Val Ile Ala Ser Asp Gly Asp Leu Gln Glu Gly Val Thr Ser 175 180 380 Glu Ala Ser Ser Ile Ala Gly Thr Gln Gln Leu Gly Asn Leu Ile Val 195 383 Phe Trp Asp Asp Asn Arg Ile Ser Ile Glu Asp Asn Thr Glu Ile Ala 210 215 386 Phe Asn Glu Asp Val Val Ala Arg Tyr Lys Ala Tyr Gly Trp Gln Thr 225 230 389 Ile Glu Val Glu Ala Gly Glu Asp Val Ala Ala Ile Glu Ala Ala Val 240 245 392 Ala Glu Ala Lys Lys Asp Thr Lys Arg Pro Thr Phe Ile Arg Val Arg 260 395 Thr Ile Ile Gly Phe Pro Ala Pro Thr Met Met Asn Thr Gly Ala Val 275 280 398 His Gly Ala Ala Leu Gly Ala Ala Glu Val Ala Ala Thr Lys Thr Glu 290 295 401 Leu Gly Phe Asp Pro Glu Ala His Phe Ala Ile Asp Asp Glu Val Ile 402 305 310 404 Ala His Thr Arg Ser Leu Ala Glu Arg Ala Ala Gln Lys Lys Ala Ala 325 407 Trp Gln Val Lys Phe Asp Glu Trp Ala Ala Ash Pro Glu Asn Lys 335 340 410 Ala Leu Phe Asp Arg Leu Asn Ser Arg Glu Leu Pro Ala Gly Tyr Ala 355 360 413 Asp Glu Leu Pro Thr Trp Asp Ala Asp Glu Lys Gly Val Ala Thr Arg 370 375

VERIFICATION SUMMARY

DATE: 02/02/2005 TIME: 16:07:47

PATENT APPLICATION: US/10/088,594B

Input Set : A:\5.1198 Sequence Listing.txt
Output Set: N:\CRF4\02022005\J088594B.raw